

## Update on Rabies Testing at Washington State Public Health Laboratories

by Beth Wieman and Jinxin Hu, Ph.D

**R**abies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. It is endemic in a variety of animals worldwide, except in Australia. Rabies is maintained and spread in two ways: in urban rabies, dogs are the primary transmitter, and in sylvatic (forest) rabies, many species of wildlife can serve as the transmitter. In the United States, the vast majority of rabies cases reported to the Centers for Disease Control and Prevention (CDC) each year occur in wild animals like raccoons, skunks, bats, and foxes. Domestic animals account for less than 10% of the reported rabies cases with cats, cattle, and dogs most often reported rabid.

Rabies virus infects the central nervous system, causing encephalopathy and ultimately, death. Early symptoms of rabies in humans are nonspecific, consisting of fever, headache, and general malaise. As the disease progresses, neurological symptoms appear and may include insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation, difficulty swallowing, and hydrophobia (fear of water). Death usually occurs within days of the onset of symptoms.

Rabies testing increases in the summer because both animals and people are more active outside. In Washington State, bats are the primary animal reservoir of rabies. Bats are more plentiful in the summer because there are numerous insects for them to eat and because their babies are born in June and July. Generally, the

animals tested for rabies have exposed or potentially exposed someone.

The standard test for rabies in animals is a direct fluorescent antibody stain applied to slides prepared from the animal's brain. This test has been thoroughly evaluated for more than 40 years, and is recognized as the most rapid and reliable of all the tests available for routine use. A single test can be performed in a minimum of four hours; multiple tests require most of one day. There are few laboratory tests that generate as much excitement and distress as a positive rabies test. Therefore, testing is performed with much attention to quality and a short turn-around-time.

Suspected rabies specimens submitted to the Washington State Public Health Laboratories (WSPHL) have increased slightly this year. From January to July, 223 animals, including 193 bats, have been tested. Five bats

continued on page 3

### Inside This Issue

- 2 West Nile Virus/St. Louis Encephalitis Update
- 2 West Nile Virus - Notifiable Condition reporting
- 3 Rabies, cont'd
- 3 MTS License Information
- 3 FREE Rapid HIV Test Performance Evaluation
- 4 Waived Testing Helpful Hints/Calendar of Events

### Practice Guidelines

The following practice guidelines have been developed by the Clinical Laboratory Advisory Council. They can be accessed at the following website:  
[www.doh.wa.gov/lqa.htm](http://www.doh.wa.gov/lqa.htm)

Anemia	Lipid Screening
ANA	Point-of-Care Testing
Bioterrorism Event Mgmt	PSA
Bleeding Disorders	Renal Disease
Chlamydia	STD
Diabetes	Thyroid
Group A Strep Pharyngitis	Tuberculosis
Hepatitis	Urinalysis
HIV	Wellness
Intestinal Parasites	

# West Nile Virus and St. Louis Encephalitis Update

by Ellicia F. Coyne, and Jinxin Hu, Ph.D

West Nile virus (WNV) is a single-stranded RNA virus of the family Flaviviridae, genus Flavivirus, within the Japanese encephalitis virus antigenic complex. This complex includes several viruses associated with human encephalitis: St Louis encephalitis virus in America, Japanese encephalitis virus in East Asia, and Murray Valley encephalitis virus and Kunjin virus (a subtype of WNV) in Australia.

Despite the known rapid geographic expansion of the virus in the United States, reported cases were infrequent (62 cases in 1999, 21 in 2000, 66 in 2001) until a large outbreak, mostly occurring in the Ohio and Mississippi River basins, resulted in more than 4000 reported cases in 2002.

The Virus Serology Lab at Washington State Public Health Laboratories (WSPHL) obtained CDC approval to start testing for WNV and St. Louis Encephalitis (SLE) IgM MAC-ELISA as of June 4th and July 10th respectively. Local testing at the WSPHL for WNV and SLE facilitates a faster turn-around-time for reporting patient negative results and alleviates the number of requests for the CDC to process. WSPHL is reporting all negative IgM results, whereas all presumptive positive results are sent to the CDC for Plaque Reduction

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#### Website addresses:

**DOH home page:** <http://www.doh.wa.gov>

**LQA home page:** <http://www.doh.wa.gov/lqa.htm>

**PHL home page:**

<http://www.doh.wa.gov/EHSPHL/PHL/default.htm>

Neutralization (PRNT) confirmatory testing prior to reporting. WSPHL has tested twenty specimens for WNV and five specimens for SLE, all with negative results.

As of July 10<sup>th</sup> the WSPHL is testing all specimens for both WNV and SLE IgM simultaneously as a standard protocol because of the similarities in their clinical presentations. According to the CDC, WNV encephalitis is defined as a febrile illness associated with neurological manifestations ranging from headache to aseptic meningitis or encephalitis. The majority of people who are infected with the West Nile virus will present with no type of illness. However, approximately 20% of the people who become infected will develop West Nile fever. West Nile fever presents with mild symptoms including fever, headache, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands. West Nile encephalitis or meningitis is a more severe infection with symptoms including headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. The CDC has estimated that 1 in 150 persons infected with the West Nile virus will develop a more severe form of the disease. The incubation period in humans from the time of infection to the onset of disease symptoms is 3 to 14 days. As of August 1, 2003, 69 human cases including three deaths were reported to CDC. Currently, there are no confirmed human cases of WNV or SLE in Washington State.

All requests for WNV and SLE serological testing must be evaluated and approved by the Washington State Public Health Laboratories Epidemiology Department. To optimize the probability of detecting the WNV and SLE MAC-ELISA IgM, specimens should be collected 8 days post onset of clinical symptoms. We are able to test either serum or CSF for WNV and SLE IgM; however both are not required. The information necessary for serological testing and interpretation includes the date of onset of symptoms, date of sample collection, evidence of clinical encephalitis, vaccination history, and travel history. Please contact the WSPHL Epidemiology Department for specimen testing requests at (206) 361-2914.

**NOTIFIABLE CONDITION REPORTING:** Under the Notifiable Conditions WAC 246-101-102, positive West Nile Virus test results must now be reported to your local health jurisdiction.. Follow the specific reporting requirements for the “Other rare diseases of public health significance” category listed in the Notifiable Conditions chart.

## Update on Rabies Testing, continued from page 1

turned out to be positive for rabies so far, compared to a total of 353 animals received in 2002 (January to December). Historically, rabies virus has been detected in horses (1995 Benton County), llamas (1995 King County), humans (1995 Lewis County, 1996 Mason County) and cats (2002 Walla Walla County) in Washington State.

The local health department should be contacted whenever testing is considered, to help determine if such testing is indicated, and if so, to arrange for shipment to the appropriate laboratory. In general, the following animals will be tested at the WSPHL: 1) mammals that bite/expose humans (except fully-vaccinated dogs, cats, ferrets, and caged animals raised indoors); 2) ill animals with signs of rabies based on a veterinarian's assessment; 3) bats that are found in a setting where contact with people may have unknowingly occurred. The local health departments keep a stock of shipping boxes that meet federal regulations for the shipping of animal parts for laboratory testing.

## Need to Update Your MTS Information?

Medical Test Sites (MTS) are required to notify the Laboratory Quality Assurance Office (LQA) when tests are added or removed from the test menu for their facility. The LQA office must also be notified when there is a change in the owner, director, or laboratory contact for the facility. These notifications must be done within 30 days of making the changes.

New forms have been added to the LQA website to facilitate this process. They can be found at: [www.doh.wa.gov/lqa.htm](http://www.doh.wa.gov/lqa.htm). Select the "Updates" tab on the left side of the screen.

- Use the "Personnel Change Notification Form" to submit changes about the owner, director, or laboratory contact for the facility.
- Use the "Test Menu Change Notification Form" to submit information about added or deleted tests.

**Waived HIV-1 Test:** If you are using, or plan to use, the new OraQuick Rapid HIV-1 test in your facility, please notify the LQA office using the "Test Menu Change Notification Form".

## NO COST Rapid HIV Testing Performance Evaluation Program

The Centers for Disease Control and Prevention (CDC) announces the availability of a no cost HIV rapid testing performance evaluation (PE) program. This program will offer external performance evaluation for rapid tests such as the OraQuick Rapid HIV-1 Antibody Test that was recently approved as a waived test by the U.S. Food and Drug Administration and for other tests such as the MedMira Reveal Rapid HIV-1 Test. Participation in the PE surveys may lead to improved testing performance because participants have the opportunity to identify areas for improvement in testing practices. This program will help to ensure accurate testing as a basis for development of prevention and intervention strategies.

This external quality assessment program is currently available at NO COST to sites performing rapid testing for HIV antibodies. This program will offer your laboratory an opportunity for:

- Assuring that you are providing accurate tests through external quality assessment,
- Improving your testing quality through self-evaluation in a nonregulatory environment,
- Testing well characterized samples from a source outside the test kit manufacturer,
- Discovering potential testing problems so you can adjust procedures to eliminate them,
- Comparing your results to others at a national and international level, and
- Consulting with CDC staff to discuss testing issues.

The CDC plans to initiate a pilot study in the summer of 2003 among U.S. laboratories using the OraQuick Rapid HIV-1 Antibody Test to evaluate the feasibility of using stabilized whole-blood samples developed for this purpose.

### Enrollment information:

770-488-8130

770-488-8091

<http://www.phppo.cdc.gov/mpep/enrollment.asp>

## Waived Testing Helpful Hints

In the previous issue, we discussed Good Laboratory Practice (GLP) #9: Sign and date the results. Here is GLP #10: Report the results to the provider.

### What does this mean?

- ✓ The person who performs the patient test should report all results promptly to the provider.
- ✓ Be sure that the results are correctly recorded on the report form or directly in the patient chart.
- ✓ Follow the written policy of your facility regarding when the provider wants to be immediately notified of a positive test result.

**NOTE:** Check this spot in future editions of *Elaborations* for more helpful hints with waived testing.

## Calendar of Events

### PHL Training Classes:

Blood Cell Morphology  
September 11                      Shoreline

Urine Sediments  
October 10                          Shoreline

### Northwest Medical Laboratory Symposium

October 22-25                      Olympia

### 10th Annual Clinical Laboratory Conference

November 10                        Seattle

### WSSCLS/NWSSAMT Spring Meeting

April 2004                            Vancouver

Contact information for the events listed above can be found on page 2. The Calendar of Events is a list of upcoming conferences, deadlines, and other dates of interest to the clinical laboratory community. If you have events that you would like to have included, please mail them to *ELABORATIONS* at the address on page 2. Information must be received at least one month before the scheduled event. The editor reserves the right to make final decisions on inclusion.